1. (Canceled) A method of producing heat energy, comprising the steps of:

providing a container for receiving an electrolyte composition, a cathode and an anode,

forming an electrolyte composition composition comprising D_2O and an ionizable acid;

placing a sufficient amount of the electrolyte composition in the container to at least partially cover a cathode made from a metal selected from the group consisting of monohydride forming metals and to at least partially cover an inert anode situated inside the container;

connecting the cathode and anode to a source of electricity; and

applying a voltage across the cathode and anode.

2 (Canceled) The method according to claim 1 wherein the cathode is made from a metal selected from the group consisting of palladium and titanium.

3. (Canceled) The method of claim 1 wherein the electrolyte during the application of a voltage is held within a container and wherein said container bounds a space above the electrolyte, said space providing a region for the recombining of gases produced during the electrolysis.

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4. (Canceled) The method of claim 1 wherein a catalyst is provided within said region catalyzing the recombined gases produced by the electrolysis.

5. (Canceled) The method according to claim 1 wherein the cathode is made from palladium.

6. (Canceled) The method according to claim 5 wherein the size of the cathode os about 1 cm^2.

7. (Canceled) The method according to claim 1 wherein the cathode is made from titanium.

8. (Canceled) The method according to claim 1 wherein the inert anode ~~is~~ is a platinum anode.

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9. (Canceled) The method according to claim 1 wherein the electrolyte composition consists essentially of D_2O and about 15% sulfuric acid by volume.

10. (Canceled) The method of claim 9 wherein the cathode is made from palladium or titanium.

11. (Canceled) A method of producing heat energy, comprising the steps of:

providing a container for receiving an electrolyte composition, a cathode and an anode,

forming an electrolyte composition ~~composition~~ comprising D_2O and sulfuric acid;

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placing a sufficient amount of the electrolyte composition in the container to at least partially cover a cathode made from a metal selected from the group consisting of hydride forming metals and to at least partially cover an inert anode situated inside the container;

connecting the cathode and anode to a source of electricity; and

applying a voltage across the cathode and anode.

12. (Canceled) A method of producing heat energy, comprising the steps of:

providing a container for receiving an electrolyte composition, a cathode and an anode,

forming an electrolyte composition ~~composition~~ comprising D_2O and 15% by volume sulfuric acid;

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placing a sufficient amount of the electrolyte composition in the container to at least partially cover a palladium or titanium cathode and an inert anode situated inside the container; wherein the container bounds a space above said electrolyte composition;

connecting the cathode and anode to a source of electricity; and

applying a voltage across the cathode and anode. and

providing a catalyst within the space above the electrolyte composition to catalyze the recombination of gases produced by the electrolyte.

13.(not entered) In a method including the step of passing an electric current through an electrolyte from an inert anode to a cathode in an electro chemical cell the improvement comprising :

said electrolyte being an acidic electrolyte consisting essentially of D_2O and an acid serving as a source of hydrogen ions,

said cathode is of an electrode formed of a metal capable of taking up hydrogen ions into the physical structure of the metal, this metal being selected from the group consisting of palladium and titanium,

The temperature of the electrolyte which is between said electrodes, the acidity

of the electrolyte , and the voltage and density of said current being related so that this temperature, this acidity, this voltage and density are all concurrently effective so that as said method is practiced a greater amount of heat is produced in said cell than would be produced in said cell if the D_2O in said electrolyte was ~~replaced~~ replaced by the same quantity of "regular" water. JCH 8-15-07

14 (not entered) The method set forth in claim 13 including:

the step of collecting gases given off by reactions involving the electrolyte during the practice of said method is carried out in an enclosed space above this electrolyte;

reacting the collected gases; and

returning the reaction products of the collected gases to said electrolyte.

15.(not entered) The method set forth in claim 14 wherein:

the collected gases are catalytically reacted above the electrolyte in said cell and are returned to said electrolyte by the action of gravity. JCH 8-15-07

16.(not entered) The method set forth in claim 15 wherein

said acid is sulfuric acid.

17. (not entered) The method claimed in claim 16 wherein;

said electrolyte contains 15% by volume sulfuric acid having a specific gravity of 1.84.

18.(not entered) The method claimed in claim 13 wherein:

said metal is palladium.

19. (not entered) The method claims in claim 13 wherein:

said metal is titanium.

20 .(not entered) The method set forth in claim 13 wherein

the step of collecting gases given off by reactions involving the electrolyte during the practice of said method is carried out in an enclosed space above this electrolyte;

reacting the collected gases; and

returning the reaction products of the collected gases to said electrolyte.

the collected gases are catalytically reacted above the electrolyte in said cell and are returned to said electrolyte by the action of gravity.

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said acid is sulfuric acid.

said electrolyte contains 15% by volume sulfuric acid having a specific gravity of 1.84.

21. (not entered, currently amended) A method of operating an electrochemical cell including an anode ~~during the operation of the cell~~ and a cathode electrically connected to the anode during the operation of the cell through an electrolyte in which:

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said electrolyte consists essentially of a mixture of D_2O and an effective amount of an acid to serve as a source of hydrogen ions,

said cathode being formed of a metal which is capable of taking up these hydrogen ions into the physical structure of the metal during the operation of the cell which is selected from the group consisting of palladium and titanium,

the temperature and acidity of the electrolyte between the electrodes and the density and current between the electrodes being related so that said electrolyte is both heated and caused to become radioactive during the operation of said cell.

through an electrolyte in which:

said electrolyte consists essentially of a mixture of D_2O and an effective amount of an acid to serve as a source of hydrogen ions,

said cathode being formed of a metal which is capable of taking up these hydrogen ions into the physical structure of the metal during the operation of the cell which is selected from the group consisting of palladium and titanium,

the temperature and acidity of the electrolyte between the electrodes and the current density ~~density and current~~ between the electrodes being related so that said electrolyte is both heated and caused to become radioactive during the operation of said cell.

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